



# Volunteer Lake Assessment Program Individual Lake Reports

## ISLAND POND, WASHINGTON, NH

### MORPHOMETRIC DATA

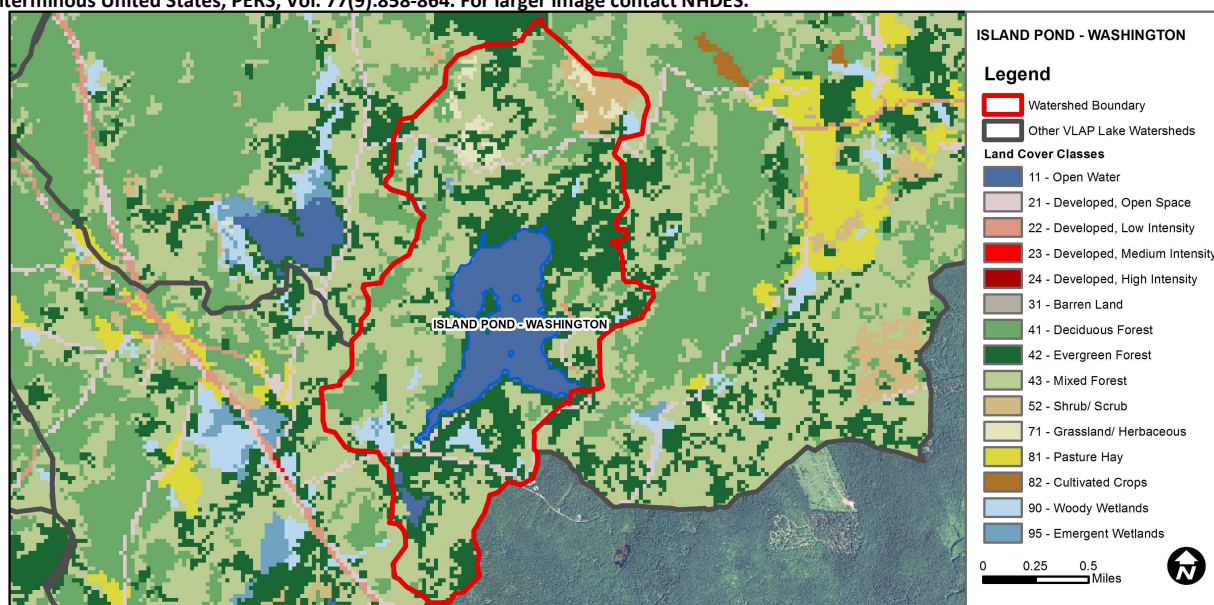
|                       |       |                           |           |                                   |      |      |               |                      |
|-----------------------|-------|---------------------------|-----------|-----------------------------------|------|------|---------------|----------------------|
| Watershed Area (Ac.): | 1,600 | Max. Depth (m):           | 16.8      | Flushing Rate (yr <sup>-1</sup> ) | 1    | Year | Trophic class | KNOWN EXOTIC SPECIES |
| Surface Area (Ac.):   | 202   | Mean Depth (m):           | 5.6       | P Retention Coef:                 | 0.64 | 2001 | MESOTROPHIC   |                      |
| Shore Length (m):     | 5,800 | Volume (m <sup>3</sup> ): | 4,574,000 | Elevation (ft):                   | 1407 | 2007 | MESOTROPHIC   |                      |

The Waterbody Report Card tables are generated from the 2012 305(b) report on the status of N.H. waters, and are based on data collected from 2001-2011.

| Designated Use             | Parameter          | Category     | Comments  |
|----------------------------|--------------------|--------------|---|
| Aquatic Life               | Phosphorus (Total) | Slightly Bad | >/=5 samples and median is >threshold.  |
|                            | pH                 | Bad          | >10%, with a minimum of 2, samples exceed criteria, with 1 or more by a large margin.   |
|                            | D.O. (mg/L)        | Good         | At least 10 samples with 1 sample but < 10% of samples exceeding criteria.  |
|                            | D.O. (% sat)       | Very Good    | At least 10 samples with 0 exceedances of criteria.   |
|                            | Chlorophyll-a      | Slightly Bad | >5 samples and median is > threshold.   |
| Primary Contact Recreation | E. coli            | Very Good    | All bacteria samples <75% of geometric mean criteria, but not enough to calculate geometric mean. Or, all bacteria samples are < single sample criteria and calculated Geometric means are less than geometric mean criteria. |
|                            | Chlorophyll-a      | Good         | At least 10 samples with 1 sample but < 10% of samples exceeding criteria.  |

### WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



| Land Cover Category        | % Cover | Land Cover Category | % Cover | Land Cover Category  | % Cover |
|----------------------------|---------|---------------------|---------|----------------------|---------|
| Open Water                 | 13.3    | Barren Land         | 0       | Grassland/Herbaceous | 1.92    |
| Developed-Open Space       | 1.99    | Deciduous Forest    | 12.45   | Pasture Hay          | 0       |
| Developed-Low Intensity    | 0.4     | Evergreen Forest    | 28.03   | Cultivated Crops     | 0       |
| Developed-Medium Intensity | 0       | Mixed Forest        | 36.68   | Woody Wetlands       | 2.65    |
| Developed-High Intensity   | 0       | Shrub-Scrub         | 2.41    | Emergent Wetlands    | 0.19    |



# VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

## ISLAND POND, WASHINGTON, NH

### 2013 DATA SUMMARY

#### OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- 🔥 **CHLOROPHYLL-A:** Chlorophyll levels were slightly elevated in June but decreased to lower levels in August. Significant spring rainfall may have contributed nutrients to the June algal growth. Historical trend analysis indicates relatively stable chlorophyll with high variability between years.
- 🔥 **CONDUCTIVITY/CHLORIDE:** Deep spot and tributary conductivity and/or chloride levels were low. Historical trend analysis indicates significantly decreasing (improving) epilimnetic conductivity since monitoring began. We hope to see this continue!
- 🔥 **E. COLI:** E. coli levels were well below state standards for public beaches and surface waters.
- 🔥 **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were very low and well below the state median. Historical trend analysis indicates relatively stable epilimnetic phosphorus with high variability between years. Phosphorus levels were low in Bodnar's Cove, Dam Outlet, and Journey's End Inlet. Boathouse Inlet phosphorus levels were slightly elevated, however decreased from high levels measured from 2010-2012.
- 🔥 **TRANSPARENCY:** Transparency decreased slightly from 2012 likely due to the slight increase in algal growth. Transparency remains better than the state median however historical trend analysis indicates significantly decreasing (worsening) transparency since monitoring began.
- 🔥 **TURBIDITY:** Deep spot and tributary turbidity levels were low on each sampling event.
- 🔥 **PH:** pH levels much lower than desirable range 6.5 – 8.0 units and critical to aquatic life. Historical trend analysis indicates relatively stable epilimnetic pH with high variability between years.
- 🔥 **RECOMMENDED ACTIONS:** Additional bracket sampling was conducted in Boathouse Inlet in 2013. Historically elevated phosphorus may be a result of wetland influences during periods of low flow. 2013 tributary flow was moderate to high and phosphorus levels were average. Continue educating watershed residents on ways to reduce stormwater runoff from their properties. Keep up the great work!

| Station Name       | Alk. | Chlor-a | Cond. | Chloride | E. Coli | Total P | Trans. |      | Turb. | pH   |
|--------------------|------|---------|-------|----------|---------|---------|--------|------|-------|------|
|                    | mg/l | ug/l    | uS/cm | mg/l     | #/100ml | ug/l    | m      |      | ntu   |      |
|                    |      |         |       |          |         |         | NVS    | VS   |       |      |
| Beach              |      |         |       |          | 5       |         |        |      |       |      |
| Boathouse Inlet    |      |         | 30.9  | 6        | 19      | 22      |        |      | 0.67  | 5.19 |
| Bodnars Cove       |      |         | 28.5  |          |         | 7       |        |      | 0.59  | 5.99 |
| Dam Outlet         |      |         | 28.5  |          |         | 5       |        |      | 0.52  | 6.15 |
| East Washington Rd |      |         | 21.0  | 3        |         | 14      |        |      | 0.57  | 5.44 |
| Epilimnion         | 1.35 | 4.81    | 28.4  |          |         | 5       | 3.38   | 4.33 | 0.41  | 5.95 |
| Metalimnion        |      |         | 30.1  |          |         | 7       |        |      | 0.57  | 5.55 |
| Hypolimnion        |      |         | 29.9  |          |         | 5       |        |      | 0.43  | 5.47 |
| Journeys End Inlet |      |         | 20.9  |          |         | 6       |        |      | 0.33  | 6.21 |

**NH Median Values:** Median values for specific parameters generated from historic lake monitoring data.

**Alkalinity:** 4.9 mg/L  
**Chlorophyll-a:** 4.58 mg/m<sup>3</sup>  
**Conductivity:** 40.0 uS/cm  
**Chloride:** 4 mg/L  
**Total Phosphorus:** 12 ug/L  
**Transparency:** 3.2 m  
**pH:** 6.6

**NH Water Quality Standards:** Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

**Chloride:** < 230 mg/L (chronic)  
**E. coli:** > 88 cts/100 mL – public beach  
**E. coli:** > 406 cts/100 mL – surface waters  
**Turbidity:** > 10 NTU above natural level  
**pH:** 6.5-8.0 (unless naturally occurring)

#### HISTORICAL WATER QUALITY TREND ANALYSIS

| Parameter    | Trend     | Explanation                                  | Parameter               | Trend     | Explanation                                  |
|--------------|-----------|--|-------------------------|-----------|--|
| pH           | Stable    | Trend not significant; data highly variable. | Chlorophyll-a           | Stable    | Trend not significant; data highly variable. |
| Conductivity | Improving | Data significantly decreasing.               | Transparency            | Degrading | Data significantly decreasing.               |
|              |           |  | Phosphorus (epilimnion) | Stable    | Trend not significant; data highly variable. |

